NASA Policy Directive

NPD 7120.6A
Effective Date: December 16, 2019
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COMPLIANCE IS MANDATORY FOR NASA EMPLOYEES

Printable Format (PDF)

Request Notification of Change (NASA Only)

Subject: Knowledge Policy for Programs and Projects

Responsible Office: Office of the Chief Engineer

1. POLICY

a. It is NASA policy to:

(1) Effectively manage the Agency's technical and program/project management knowledge to cultivate, identify, capture, retain, utilize, and share knowledge in order to continuously improve the performance of NASA in implementing its mission, in accordance with NPD 1000.0, Governance and Strategic Management Handbook. In order to meet future challenges, innovate successfully, and keep pace with the state of the art in rapidly changing times, NASA will focus on the following critical activities:

(a) Ensure that the Agency's technical and program/project knowledge is captured and accessible across all Centers and Mission Directorates. Historically, NASA's principal mechanism for collecting and sharing lessons learned from Agency programs and projects has been an online database called the Lessons Learned Information System (LLIS). The LLIS is one component of NASA¹s larger knowledge management and sharing system, which has evolved to include numerous training sessions, knowledge-sharing events, and tools that contribute to organizational learning and mission success.

(b) Promote an environment for the technical workforce that fosters continuous learning and adaptation to emerging technological and governing conditions.

(c) Enhance awareness of Agency knowledge management resources, such as the APPEL Knowledge Services Web site (appel.nasa.gov), where NASA's technical workforce can find knowledge needed to support project learning and mission success.

(d) Promote the use of leading practices in knowledge cultivation, identification, capture, retention, utilization, and sharing of the Agency's collective know-how on programs and projects. NASA Centers, Mission Directorates, and mission support organizations, as identified in NPD 1000.3, The NASA Organization, employ a range of knowledge management approaches and practices to address their unique capabilities, missions, and institutions. NASA Centers and Mission Directorates share their knowledge management practices and solutions to common knowledge challenges and adopt leading practices from others to achieve continuous improvement and increased efficiency.

(e) Mitigate the impacts of attrition and other workforce demographic trends or program/project closeouts on knowledge loss and close anticipated knowledge gaps to benefit future knowledge users.

(f) Support NASA policy that NASA leaders, managers, supervisors, and personnel participate in ongoing training and skills enhancement for project and program excellence, in accordance with NPD 7120.4, NASA Engineering and Program/Project Management Policy, NPR 7120.5, NASA Space Flight Program and Project Management Requirements, NPR 7120.7, NASA Information Technology and Institutional and Infrastructure Program and Project Management Requirements, NPR 7120.8, NASA Research and Technology Program and Project Management Requirements, NPR 7123.1, NASA Systems Engineering Processes and Requirements, NPR 7150.2, Software

Engineering Requirements, and NPR 8621.1C, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping. This includes skills development in the effective cultivation, identification, capture, retention, utilization, and sharing of knowledge. NASA is committed to developing new ways of sharing and transferring knowledge, as well as developing tools, practices, and processes that facilitate learning.

(g) Govern the knowledge management enterprise on a federated basis, such that each Center or Mission Directorate determines the approach that best meets its needs, with the understanding that knowledge applicable to all NASA missions and Centers will be shared to the greatest extent possible across the entire Agency.

2. APPLICABILITY

a. This NPD is applicable to NASA Headquarters and NASA Centers, including Component Facilities and Technical and Service Support Centers.

(1) This language applies to the Jet Propulsion Laboratory, a Federally Funded Research and Development Center, other contractors, grant recipients, or parties to agreements who create and/or maintain knowledge for, or on behalf of, NASA as specified or referenced in the appropriate contracts, grants, or agreements.

(2) In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms "may" or "can" denote discretionary privilege or permission; "should" denotes a good practice and is recommended, but not required; "will" denotes expected outcome; and "are/is" denotes descriptive material.

(3) In this directive, all document citations are assumed to be the latest version unless otherwise noted.

(4) This NPD is not applicable to financial management data and systems under the oversight of the Chief Financial Officer (CFO), which are statutorily delegated to the CFO under the CFO Act, 31 U.S.C. 902. The CFO will designate a point of contact to coordinate with the Chief Knowledge Officer (CKO), as appropriate, in carrying out the CFO's authority to "oversee all financial management activities relating to the programs and operations of the Agency."

3. AUTHORITY

a. Arms Export Control Act, 22 U.S.C. § 2751, et seq., as implemented by the International Traffic in Arms Regulations, 22 Code of Federal Regulations (CFR) Parts 120-30.

b. The Federal Records Act, 44 U.S.C. § 3101, et seq.

c. Export Administration Act of 1979, 50 U.S.C. Appendix §§ 2401-2420, as implemented by the Export Administration Regulations, 15 CFR Parts 730-774.

d. The National Aeronautics and Space Act, 51 U.S.C. 20113(a).

e. Information Technology Management, Pub L. 107-217, repealing and reenacting the Clinger Cohen Act of 1996, 40 U.S.C. §§ 11101, et seq., as amended.

f. Electronic and Information Technology Accessibility Standards, 36 CFR Part 1194.

g. Office of Management and Budget (OMB) Circular A-130, Management of Federal Information Resources.

4. APPLICABLE DOCUMENTS AND FORMS

a. NPD 1000.0, NASA Governance and Strategic Management Handbook.

b. NPD 1000.3, The NASA Organization.

c. NPD 2200.1, Management of NASA Scientific and Technical Information.

d. NPD 7120.4, NASA Engineering and Program/Project Management Policy.

e. NPR 7120.5, NASA Space Flight Program and Project Management Requirements.

f. NPR 7120.7, NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements.

g. NPR 7120.8, NASA Research and Technology Program and Project Management Requirements.

h. NPR 7123.1, NASA Systems Engineering Processes.

i. NPR 7150.2, NASA Software Engineering Requirements.

j. NPR 8621.1, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.

5. RESPONSIBILITY

a. Knowledge management activities on technical programs and projects frequently require close coordination with the Office of the Chief Information Officer, the Office of International and Interagency Relations, the Office of Safety and Mission Assurance, the Office of the General Counsel, and other offices, as appropriate, to protect knowledge consistent with NASA policy and Federal laws and regulations. The Agency CKO and other Center and Mission Directorate CKOs are responsible for liaising with the appropriate offices to ensure the success of their activities and support the Agency's mission.

(1) Each organization is responsible to implement continuous improvement of knowledge management processes.

(2) Individuals at all levels are responsible for appropriately and continuously retaining, sharing or protecting, and utilizing knowledge.

(3) The NASA Chief Engineer shall:

(a) Serve as the principal advisor to the Administrator and other senior officials on matters pertaining to NASA's knowledge and related services.

(b) Provide strategic guidance to the NASA CKO for coordinating Agency-wide initiatives to advance capabilities in identifying, capturing, and transferring knowledge.

(c) Champion and support NASA-wide efforts that lead to greater integration and collaboration across the Agency.

(d) Provide oversight of knowledge enterprise goals and act as an agent of change for the organization through leadership and interpersonal skills.

(e) Guide efforts for Agency-level standards and policies as applied to knowledge management.

(f) Support efforts to collect and analyze measurement data to monitor the effectiveness of NASA's knowledge management services.

(g) Promote NASA's knowledge-sharing efforts and best practices with senior executive Agency leadership and across the Federal and international senior executive leadership communities.

b. The NASA CKO is responsible for policy and integration of knowledge services across programs and projects in the Centers and Mission Directorates and reports to the Office of the Chief Engineer. The NASA CKO shall:

(1) Coordinate Agency-wide initiatives to advance capabilities in identifying, capturing, and transferring knowledge.

(2) Encourage organizational practices, training, and resources that build, develop, and sustain an organizational culture that leverages the benefits of knowledge management principles and practices.

(3) Provide direction to the enterprise goals and act as an agent of change for the Agency through leadership and interpersonal skills.

(4) Provide guidance to programs, projects, and activities on the recommended content and format of program, project, or activity knowledge management plans.

(5) Promote the role of knowledge and knowledge management priorities both inside and outside NASA.

(6) Advise the Agency Program Management Council and external stakeholders on matters pertaining to NASA's knowledge activities.

(7) Promote the use of best practices in knowledge identification, capture, retention, and sharing.

(8) Facilitate the dissemination and promote the infusion and utilization of lessons learned and best practices, develop and share actionable methodologies, and maintain the NASA Lessons Learned Information System.

(9) Collect and analyze measurement data to monitor the effectiveness of NASA's knowledge management capabilities.

(10) Conduct and promote knowledge-sharing activities such as forums, events, publications, and broadcast or online events sponsored by NASA, Centers, or Mission Directorates.

c. Center Directors and Mission Directorate Associate Administrators shall appoint a CKO or point of contact who is responsible for overseeing the planning and execution of knowledge activities within their respective organizations and supporting the Agency CKO in planning and implementing the Agency's knowledge policy.

d. Center and Mission Directorate CKOs and knowledge points of contact facilitate the capture and sharing of corporate knowledge; serve as advocates for the knowledge needs of their respective organizations; and support the Agency CKO to ensure the effective planning and implementation of the Agency's knowledge policy. Center and Mission Directorate CKOs shall:

(1) Share their knowledge strategy and achievements at semiannual meetings convened by the NASA CKO for the purpose of promoting greater Agency integration and collaboration.

(2) Align knowledge management practices with Agency needs and policies.

(3) Support and provide information for assessments conducted by the Agency CKO.

(4) Oversee the planning and execution of the Center or Mission Directorate's knowledge management activities.

(5) Establish, cultivate, and enhance Center or Mission Directorate culture to leverage the benefits of knowledge management principles and practices.

(6) Provide influence to the establishment of the Center or Mission Directorate's goals.

(7) Act as an agent of change for the organization through leadership, interpersonal skills, and subject matter expertise.

(8) Actively support programs, projects, activities, and Center or Directorate line organizations by:

(a) Providing guidance on development of knowledge management plans and approaches for programs and projects and activities as required or recommended by NPD 7120.4, NASA Engineering and Program/Project Management Policy, NPR 7120.5, NASA Space Flight Program and Project Management Requirements, NPR 7120.7, NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements, and NPR 7120.8, NASA Research and Technology Program and Project Management Requirements.

(b) Assisting program and project managers as they review, document, and infuse lessons learned.

(c) Promoting knowledge and skill enhancement through relevant training in program and project management, engineering, and support disciplines.

(d) Collecting, documenting, submitting, and ensuring proper marking for program/project and institutional best practices and lessons learned to align with Center and Agency Lessons Learned sharing processes.

(e) Coordinating with NASA Technical Standards program management to initiate or modify technical standards based on lessons learned when warranted in accordance with NPR 7120.10, Technical Standards for Programs and Projects.

(f) Coordinating with the Office of Safety and Mission Assurance to ensure that lessons are generated and preserved so that knowledge related to mishaps and other safety-related incidents can be shared and applied.

(g) Developing a knowledge strategy for their respective organizations that addresses, at a minimum, the following:

(i) Approach for identifying, capturing, retaining, and acting on knowledge critical to NASA's mission.

(ii) Activities or initiatives to assess and address gaps in knowledge retention and sharing.

(iii) General description of key approaches to knowledge management implementation.

(iv) Actively promoting the role of knowledge and the knowledge management agenda both inside and outside NASA.

e. Identifying resources, capabilities, and infrastructure necessary to support knowledge management in organizations.

f. NASA employees should actively participate in knowledge-sharing activities to ensure mission success and the retention of vital information and lessons learned as follows:

(1) Assume responsibility for gathering, organizing, and sharing knowledge.

(2) Host and attend knowledge-sharing sessions across organizations.

(3) Actively participate in knowledge activities in order to learn and contribute knowledge to the shared goal of mission success.

6. DELEGATION OF AUTHORITY

None.

7. MEASUREMENT/VERIFICATION

The NASA CKO is responsible for reviewing and assessing the overall effectiveness of the Agency's knowledge management with respect to programs and projects. Each Center or Mission Directorate measures its own progress against goals and milestones in the manner most appropriate for the size and scope of its activity.

8. CANCELLATION

NPR 7120.6, NASA Lessons Learned Process, dated March 22, 2005.

/s/Jim Bridenstine
Administrator

ATTACHMENT A: (TEXT)

ATTACHMENT A: DEFINITIONS

APPEL Knowledge Services - the Academy of Program/Project and Engineering Leadership Knowledge Services (APPEL KS) unites curriculum and career development tools from APPEL with the critical knowledge sharing and knowledge management capabilities of the CKO to establish a comprehensive, knowledge-dedicated resource for NASA.

Best Practices - Sets of defined guidelines, methods, or techniques that have consistently represented the perceived optimal way of performing a process, operation, or handling of a task.

Information - A codified message presented in context.

Knowledge Cultivation - Taking appropriate actions after issues are identified and how they may be mitigated through knowledge management.

Knowledge Management - A practice that empowers an organization to continuously capture, distribute, and effectively utilize knowledge. NASA knowledge management assists programs and projects to innovate and systematically improve their performance in implementing their mission by transferring knowledge.

Like other large, knowledge-intensive organizations, NASA faces continuous challenges in effectively using what it knows. These challenges include enabling the identification and flow of knowledge across organizational boundaries; ensuring that knowledge is sound, relevant, comprehensible, and adopted where needed; developing and supporting networks of expertise; preserving knowledge at risk of being lost; and providing means for individuals, teams, and the organization to learn from experiences.

Knowledge management is critical for sustaining and expanding the use of the Agency's intellectual capital across NASA's enterprises and generations, increasing collaboration across barriers, and supporting the workforce in successfully carrying out NASA's missions. Knowledge management addresses how knowledge is created, retained, shared, and transferred throughout NASA and with its partners and contractors. Knowledge management at NASA is intended to foster program and project success and continuous improvement. It involves dynamic contextual learning that supports the effective transfer and utilization of knowledge throughout the Agency. Knowledge management at NASA integrates the policies, processes, and practices that allow the Agency to identify and manage knowledge gained by its workforce.

Knowledge Services - Management and service-delivery methodology that helps ensure organizational success by recognizing knowledge as the organization's most critical asset and converging knowledge management, strategic learning, and information management into a single, overarching operational function.

Knowledge Sharing - An activity through which knowledge is exchanged.

Lessons Learned - Captured knowledge or understanding gained through experience which, if shared, would benefit the work of others. Unlike a best practice, lessons learned describes a specific event that occurred and provides recommendations for obtaining a repeat of success or for avoiding reoccurrence of an adverse work practice or experience.

ATTACHMENT B: ACRONYMS

CFO Chief Financial Officer

CFR Code of Federal Regulations

CKO Chief Knowledge Officer

NASA National Aeronautics and Space Administration

NPD NASA Policy Directive

NPR NASA Procedural Requirements

OMB Office of Management and Budget

U.S.C. United States Code

ATTACHMENT C: REFERENCES

C.1 NPD 1000.0, Governance and Strategic Management Handbook.

C.2 NPD 1382.17, NASA Privacy Policy.

C.3 NPD 7120.4, NASA Engineering and Program/Project Management Policy.

C.4 NPR 2190.1B, NASA Export Control Program.

C.5 NPR 2200.2, Requirements for Documentation, Approval, and Dissemination of Scientific and Technical Information.

C.6 NPR 7120.5E, NASA Space Flight Program and Project Management Requirements.

C.7 NPR 7120.7, NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements.

C.8 NPR 7120.8, NASA Research and Technology Program and Project Management Requirements.

C.9 NPR 7120.10, Technical Standards for NASA Programs and Projects.

C.10 NPR 7150.2, Software Engineering Requirements.

C.11 NPR 8621.1C, NASA Procedural Requirements for Mishap and Close Call Reporting, Investigating, and Recordkeeping.

(URL for Graphic)

None.

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